EXPRESS MAIL NO.: EL 984585238 US DATE DEPOSITED: 03/31/2004

Serial No.: Not yet Assigned

Title: HEPARIN/HEPAROSAN SYNTHASE FROM P.MULTOCIDA,
SOLUBLE AND SINGLE ACTION CATALYSTS THEREOF AND
METHODS OF MAKING AND USING SAME

Inventor: Paul DeAngelis Group: Unknown
Filed: March 31, 2004

Agent: Kathryn L. Hester, Ph.D. Examiner: Unknown
Docket No. 4599.014

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FIGURE 1

	91 140
HSA	APPLVSIIMTSHNTEKFIEASINSLLLQTYNNLEVIVVDDYSTDKTFQIA
KfiC	GKDLVSIIMSVFNSEDTIAYSLHSLLNQTYENIEILVCDDCSSDKSLEII
Consensus	LVSIIM*N*EISSLL.QTY#N.E!.V.DD.S*DK*.#I.
1	41 190
HSA	SRIANSTSKVKTFRLNSNLGTYFAKNTGILKSKGDIIFFQDSDDVCHHEF
KfiC	KSIAYSSSRVKVYSSRKNQGPYNIRNELIKKAHGNFITFQDADDLSHPEF
Consensus	IA.S*S*VK.%N.G.YNI.KG#.I.FQD.DDH.EF
1	91 240
HSA	IERCVNALLSNKDNIAVRCAYSRINLETQNIIKVNDNKYKLGLITLGVYF
KfiC	IQRQVEVLRNNKAVICM.ANWIRVASNGKIQFFYDDKATRMSVVSSMIKE
Consensus	I#R.V#.LNKIR!##D*\$!*!.*
4	41 490
HSB	YITCDDDIRYPADYINTMIKKINKYND.KAAIGLHGVIFPSRVNKYFSSI
KfiA	IVLTDDDIIYPPDYVEKMLNFYNSFAIFNCIVGIHGCIYIDAFDGD.QSK
Consensus	.!DDDI.YP.DY!#.MN.%!G.HG.I%#S.
4	91 540
HSB	RIVYNFQKTFRKDTAVNILGTGTVAFRVSIFNKFSLSDFEHPGMVDIYFS
KfiA	RKVFSFTQGLLRPRVVNQLGTGTVFLKADQLPSLKYMDGSQR.FVDVRFS
Consensus	R.V%.F*VN.LGTGTV*DVD!.FS

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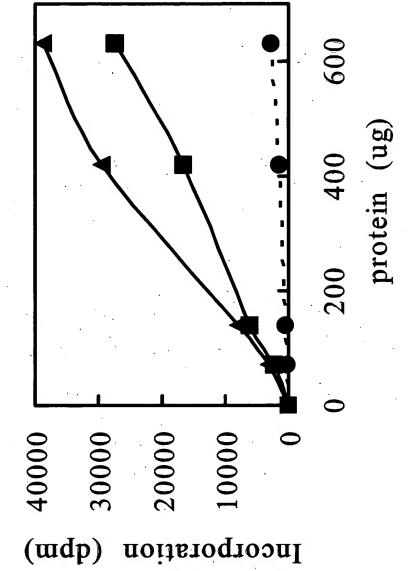
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IG. 2

	1	10	20	30	40	50	60	70	80 1
pnHS2 pnHS1 Consensus	MKRKKEI	-				SQQTLLAKQD TLYENIIY sqqeniqd	SKHPLSASLEI GEVI ga.e	NENKLLLKQL(KY.IDIC.K-I ne.idic.q.	NITQSK Hitqqe
	81	90	100	110	120	130	140	150	160 I
pnHS2 pnHS1 . Consensus	FEKIYT'SNEE	YNQALEAKI	_EKDKQTTSI	TDLYNEVRKS	DLGLYKEINS	; D HWLFA2TTUI	FK	SINSLLLQTY	KNIEII N.L.Y. n.i.!.
Conscious	161	170	180	190	200	210	220	230	240 I
pnHS2 pnHS1	IVODDS	SDNTFEIR	SRIANTTSKY	RYFRLNSNLG	TYFAKNTGII	-K2KGNTT++	INSUNATUUCE	TERCYNILLAAS	DN
Consensus	241	250	260	270	280	290	300	310 +	320
pnHS2 pnHS1 Consensus	VRCAYS	RLAPETQH	IIKANNHDAI	RLGFITLGHHF	SKALGEIGHL	NC LIKGSDDEI O	A L LUKTUVIIA	(EKIKNLLLPL ,NR.NF ,#r.n1	
Consensos	321	330	340	350	360	370	380	390	400
pnHS2 pnHS1 Consensus	ENSLFT	TDMVEHIDN SV.E S!.#	HNIIQKHSU N.K.T N.i.n	TROHYHTLFUI AN.LHEI an.ahe	KIRKLNE airaln#	L.EI.S	HISK	••••••	•••••
•	401	410	420	430	440	450	460	470	480
pnHS2 pnHS1 Consensus	PSRIA	QLRRIIGIL	KNQCDHFHI.	AFDGAAETAN	FTKMFRMKHI	AAUCKOVOUS	TKDMON TEE	EELIEKNQDG .KKE.K .eee.q	
e elle elle	481	: 490	500	510	520	530	540	550	56 0
pnHS2 pnHS1	DIIYP	SDYINTHII	KKLNEYDDKA	MICCHCICLA	SKULKALZHI	JKFA 12L IKLE	ENUNNTHITEU M T T	TGTVSFRVSL AI	K
Conscisus	561	570	580	590	600	610	620	630	640
pnHS2 pnHS1 Consensus	DFTHS	GMRDIYFS	LLCKKNNILC	QICISRPANHL	TEDNROSETI	LYHQYRDXUEI	L CA TO M	PHGYSSIYPLV L	N. NANYS
pnHS2 pnHS1 Consensus	DLIPO E	LPFYFL sNE							

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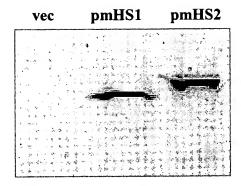
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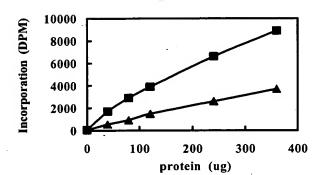
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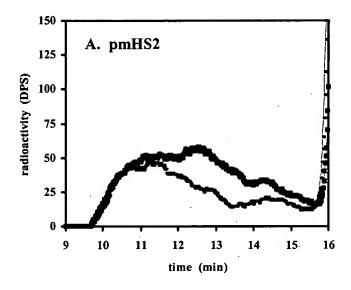
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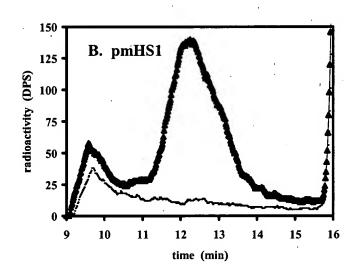


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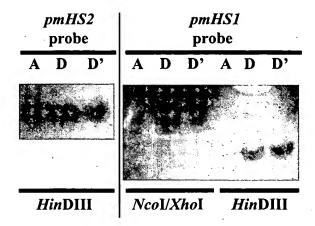
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Paul DeAngelis
March 31, 2004
Kathryn L. Hester, Ph.D.
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Examiner: Unknown

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Schematic Models of Pasteurella GAG synthase

transferase sites & membrane association regions

pmHAS

GlcNAc-Tase

Z

GlcUA-Tase

mem

C

GICUA-Tase

GalNAc-Tase

Z

pmCS

C

mem

pmHS1 & pmHS2

mem

Z

GIcUA-Tase

GICNAc-Tase

S

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HEPARIN/HEPAROSAN SYNTHASE FROM P.MULTOCIDA,
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Serial No.:
HFPADIN/HENAROGEN CONTROL MEDIN/HENAROGEN CONTROL CONT Group:

Examiner: Unknown March 31, 2004 Kathryn L. Hester, Ph.D. 4599.014 DRAWINGS Paul DeAngelis

Inventor: Filed:

Agent: Docket No. SHEET 9 OF 10

			= a GlcNAc-tase (e.g. M3)		·			= a GlcUA-tase (e.g. M4)
GlcNAc-Tase			GlcNAc-Tase	GlcNAc-Tase	oxo -	mutate	NXN	
GlcUA-Tase	DXD mutate	NXN →	· · · · · · · · · · · · · · · · · · ·	GlcUA-Tase				GlcUA-Tase
mem			mem	mem				mem

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March 31, 2004
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